

What Is Claimed Is:

1. A cDNA chip for screening and function analysis of swine genes comprising a probe capable of detecting marker genes specifically expressed in the muscle and fat tissues of swine and a substrate on which the probe is immobilized.
2. The cDNA chip according to claim 1, wherein the probe includes 4434 ESTs (Expression Sequence Tags) derived from the muscle and fat tissues of swine for the marker genes.
3. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the cellular structure and motility include 1-alpha dynein heavy chain, 19 kDa-interacting protein 3-like, actin, actin alpha 1, actin gamma 2, annexin A2, annexin V, annexin II, beta-myosin heavy chain mRNA, calpain large polypeptide L2, collagen, collagen alpha 1, collagen alpha 2, collagen alpha V, Discs, large (Drosophila) homolog 5, fibronectin, heparan sulfate proteoglycan 2, lamin A/C, myosin, myosin heavy chain, myotubularin related protein 4, procollagen-proline, acidic secreted protein, tropomyosin, tropomyosin alpha chain, troponin C, tubulin beta chain and vimentin.
4. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the metabolism include aldolase A, carbonate dehydratase, cytochrome C, cytochrome C oxidase subunit I, cytochrome-C oxidase, fructose-1,6-bisphosphatase, L-lactate dehydrogenase M chain, LIM domains 1 protein, NADH dehydrogenase, NADH-ubiquinone oxidoreductase chain 1, NADH4L, octanoyltransferase (COT), phosphoarginine phosphatase, phosphoglucomutase isoform 2 mRNA, protein-tyrosine kinase, pyruvate kinase, sarcolipin, tyrosine phosphatase type IVA, UDP glucose pyrophosphorylase, glycogen phosphorylase b and superoxide dismutase.
5. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the expression of genes and proteins include elongation factor 1 alpha, elongation factor 1 alpha 1, enolase 3, repetitive DNA sequence element RPE-1, reticulum protein, ribonucleoprotein polypeptide B, ribosomal protein, ribosomal

protein L18a, ribosomal protein P0, transfer RNA-Trp synthetase, translation initiation factor eif1, LIM domains 1 protein and tissue inhibitor of metalloproteinase 3.

5           6. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the signaling and communication of cells include complete mitochondrial DNA, mitochondrion, potassium channel and similar to creatine kinase.

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          7. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the cell division include protease and cystein 1.

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          8. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to the immune response include Interleukin-2 receptor alpha chain, Kel-like protein 23 and MHC class I SLA genomic region.

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          9. The cDNA chip according to claim 1, wherein the marker genes to be detected from the probe which are related to growth include the nucleotide sequences of growth factors I, II, III, IV and V as set forth in SEQ ID NOs: 1 to 5.

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          10. A kit for screening and function analysis of swine genes comprising the cDNA chip as defined in claim 1.